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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Aharon J Agranat

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12/02/2008

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EXAMINER

LI, SHI K

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/542,923	AGRANAT, AHARON J	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005 and 24 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 2, 14, 22-29, 40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-13, 15-21, 30-39, 42 and 43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/27/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species II and sub-species A and B in the reply filed on 24 September 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 1, 3-13, 15-21, 30-39 and 42-43 are readable on the elected species and sub-species. Claims 2, 14, 22-29 and 40-41 are withdrawn as being directed to non-elected invention. The election requirement is made final.

Drawings

2. FIGs. 1a, 1b, 2a, 2d, , 2e, 2f, 2g, , 2h, , 3a, , 3b, 4, 5a, and 5b are objected to under 37 CFR 1.84(o) because there are no descriptive legends for the boxes. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13, 15-21 and 30-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 13 recites the limitation "a second plurality of PEs" in line 13 of the claim. The term PE is unclear.

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6. Claim 34 recites the limitation "said optical switch array" in lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 10, 13, 15, 18-20, 37 and 42-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnsley et al. (U.S. Patent 5,864,414).

Regarding claims 1 and 43, Barnsley et al. teaches in FIG. 1 an optical network comprising head station 2 and terminal stations 1a, 1b, ..., 1n. Barnsley et al. teaches in FIG. 2a that the head station comprises a plurality of laser sources 6-1 to 6-4 for generating continuous wave (CW) light. The lasers are of distinct wavelengths λ_1 - λ_4 . FIG. 1 shows laser distribution grid 3a, 3b, ..., 3n. Barnsley et al. teaches in FIG. 2b terminal station 1m which comprises an optical switch array 15. Since there are a plurality of terminal stations, Barnsley et al. teaches a plurality of optical switch arrays. Barnsley et al. teaches in FIG. 2b switch driver 16 for generating input signals to the switches of a switch array. Barnsley et al. teaches in FIG. 2b that the remainder of said light propagation continues to the next terminal station.

Regarding claim 10, inherently, an optical switch deflects a predetermined portion of a light signal

Regarding claim 13, 37 and 42, Barnsley et al. teaches in FIG. 2b processor 18 and modulator 25

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Regarding claim 15, Barnsley et al. teaches in FIG. 2b coupler 26.

Regarding claim 18, Barnsley et al. teaches in FIG. 2b demultiplexer 13.

Regarding claims 19-20, Barnsley et al. teaches in FIG. 4a though FIG. 4f for using wavelength as address. Barnsley et al. teaches in FIG. 2b receiver 21.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3-4 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Official Notice.

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach whether the fiber 3 is single mode or multi-mode. However, the use of single mode or multi-mode fiber for transmission of optical signal and is well known in the art and the combination of using any type of fiber with the optical network of Barnsley et al. would have yielded predictable results for one of ordinary skill in the art at the time of the invention. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use single mode or multi-mode fiber in the optical network of Barnsley et al.

11. Claims 5-6 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Pesach et al. (B. Pesach et al., "Free-Space

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Optical Cross-Connect Switch by Use of Electroholography”, Applied Optics, Vol. 39, No. 5, 10 February 2000).

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach electroholographic switch. Pesach et al. teaches in FIG. 4 electroholographic (EH) switch. One of ordinary skill in the art would have been motivated to combine the teaching of Pesach et al. with the optical network of Barnsley et al. because EH switches are transparent to both the data-throughput rate and the communication protocol. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use EH switch, as taught by Pesach et al., in the optical network of Barnsley et al. because EH switches are transparent to both the data-throughput rate and the communication protocol.

12. Claims 7-9 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Nakajima et al. (U.S. Patent Application 2004/0208540 A1).

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach using one switch for each wavelength; instead Barnsley et al. uses a 2x2 switch for two wavelengths. Nakajima et al. teaches in FIG. 4B that a 2x2 switch can be implemented using two (2) 2x1 switches. One of ordinary skill in the art would have combined the teaching of Nakajima et al. with the optical network of Barnsley et al. because the combination would have yielded predictable results for one of ordinary skill in the art at the time of the invention. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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use one (1) 1x2 switch for each wavelength instead of a 2x2 switch for two wavelengths, as taught by Nakajima et al., in the optical network of Barnsley et al.

13. Claims 11 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) and Official Notice.

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach fixed-wavelength laser. However, Barnsley et al. explicitly indicates in FIG. 2a that the four lasers generate wavelengths λ_1 , λ_2 , λ_3 and λ_4 . Fixed wavelength lasers are inexpensive in comparison with tunable lasers. One of ordinary skill in the art would have been motivated to use fixed wavelength lasers in the optical network of Barnsley et al. because fixed-wavelength lasers are inexpensive. Furthermore, the use of fixed-wavelength lasers in the optical network of Barnsley et al. would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use fixed-wavelength lasers in the optical network of Barnsley et al.

14. Claims 12 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Yamazaki et al. (S. Yamazaki et al., "A Coherent Optical FDM CATV Distribution System", Journal of Lightwave Technology, Vol. 8, No. 3, March 1990).

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach tunable lasers. However, Barnsley et al. refers in col. 7, lines 15-19 the paper of

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Yamazaki et al. for the wavelength stabilizer. Yamazaki et al. teaches on page 397, Section III.A to use tunable DBR LD as light sources. One of ordinary skill in the art would have been motivated to combine the teaching of Yamazaki et al. with the optical network of Barnsley et al. because Barnsley et al. refers the paper. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use tunable lasers, as taught by Yamazaki et al., in the optical network of Barnsley et al.

15. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Official Notice.

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach dense WDM and coarse WDM. XXX fails to teach a laser, modulator and YYY. Official Notice is taken that both the concept and the advantages of using either dense WDM or coarse WDM in optical communication system are well known and expected in the art. It would have been obvious to use either dense WDM or coarse WDM depending on the number of wavelengths. For example, if only four wavelengths are needed, one may use coarse WDM. On the other hand, if 32 or more wavelengths are needed, one may use dense WDM.

16. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley et al. (U.S. Patent 5,864,414) in view of Doerr et al. (U.S. Patent 5,923,449).

Barnsley et al. has been discussed above in regard to claims 1, 10, 13, 15, 18-20, 37 and 42-43. The difference between Barnsley et al. and the claimed invention is that Barnsley et al. does not teach the relationship between the number of wavelengths and the number of terminals. However, it is understood that the number of wavelengths depends on the traffic capacity. If the

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traffic is heavy for each terminal, a wavelength can be assigned to a terminal. For example, Doerr et al. teaches in FIG. 1A an optical network where each terminal is assigned a wavelength. One of ordinary skill in the art would have been combined the teaching of Doerr et al. with the optical network of Barnsley et al. because assigning a wavelength to a terminal give enough capacity for handle traffic and simplifies routing. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to assign a wavelength to a terminal, as taught by Doerr et al., in the optical network of Barnsley et al. because assigning a wavelength to a terminal give enough capacity for handle traffic and simplifies routing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl

25 November 2008

/Shi K. Li/

Primary Examiner, Art Unit 2613